THOMAS J. BLILEY JR.

Congress of the United States

House of Representatives

Washington, DC 20515

May 9, 1991

The Honorable William Reilly
Administrator
U.S. Environmental Protection Agency
401 M Street, SW
Washington, D.C. 20460

Dear Mr. Reilly:

Nearly one year ago, I first expressed my concern as the Ranking Minority Member of the Subcommittee on Oversight and Investigations of the Committee on Energy and Commerce over the manner in which EPA was proceeding on three documents related to Environmental Tobacco Smoke [ETS]. As I have indicated previously, my concern goes far beyond that of ETS to the overall process by which the Agency conducts risk assessments. In light of the responsibility given to the EPA by the Clean Air Act, it is essential that the agency conduct its scientific analysis in a fair and consistent manner. If the ETS risk assessment is representative of EPA's capability of dealing with complex scientific issues in an objective fashion in accordance with its own guidelines, I fear the responsibility entrusted to the EPA by Congress may be misplaced.

While I have appreciated your attempts to respond to my concerns, I must in all candor indicate that those concerns are greater today than they were a year ago. As I result, I feel compelled to continue and expand my inquiry on this matter.

On April 10, 1991, Deputy Administrator F. Henry Habicht, II appeared before the Subcommittee on Health and Environment of the Committee on Energy and Commerce at a hearing on the Indoor Environment. Mr. Habicht's testimony covered in detail EPA's activities on indoor environment issues. Included in his testimony was the statement that EPA "has two major informational documents in preparation on ETS at the present time." [Page 13 of prepared statement.] Based on the statement I asked Mr. Habicht if "the technical compendium that was being worked on at one point has been dropped and will not be completed?" To my surprise, Mr. Habicht stated "[t]hat is on a separate track. I can't say right now what the schedule or precise outcome of that is going to be, but it's not on the same track as the risk assessment and policy guide."

Frankly, I'm a little confused. *Please explain how the agency could maintain in its prepared testimony that was presumably prepared with the assistance of those working on these projects that there were two documents in preparation and then indicate that a third document was proceeding on a "separate track?"*

In fact, this morning the Agency only added to the confusion when Michael Shapiro, Deputy Assistant Administrator for Air and Radiation, told the Subcommittee on Environment of the Committee on Science, Space, and Technology that EPA "has two major informational documents in preparation on ETS at the present time." [Page 14, prepared testimony of Michael Shapiro]

Deliberately providing false information to Congress is a serious matter. I hope that is not what is going on here. I find it troubling that the Agency appears "to be all over the map" on this matter. *Was Mr. Shapiro incorrect in his prepared testimony or did Mr. Habicht, after consulting with an employee of the Indoor Air Division, supply a false answer to my question?*

This is particularly troublesome in light of the fact that when EPA began this entire project the third document, the technical compendium, was supposed to form the basis for at least one of the other two documents, namely the policy guide.

A review of Agency documents seems to indicate that there is no consistent view of what role the technical literature compendium plays if any. Early in the process the policy guide was referred to as a simplified version of the compendium. Importantly, the SAB's draft report makes the point that it could not vouch for many of the statements in the policy guide because no supporting documentation was provided.

> Furthermore, there were statements about cardiovascular mortality, cancers at other sites, and aggravation of cardiovascular and respiratory disease that were not addressed in the ETS Risk Assessment. Thus, without having any supporting documentation, the Committee could not endorse these statements.
>
> The Policy Guide draft will need to be revised to reflect the changes that are being made in the Risk Assessment. If the Committee is to review the Policy Guide again, it should be sent to the Committee with a supporting document that explicitly states the technical basis for each of its summary statements on the state of scientific knowlege. [Page 42, draft SAB Report]

The passage quoted above indicates that the SAB felt the need for further documentation of many of the statements in the Policy Guide. *What led the Agency to redefine the role of the technical compendium?*

In July 1990, you responded to my letters dated May 17 and June 6, in which you indicated that

> [t]he technical compendium has undergone a limited external peer review and its chapters are now being revised to incorporate changes. When those revisions are completed, the cooperating organizations will discuss the appropriate next steps to take in ensuring that the document is a fair review of the existing technical information available on ETS. Those discussions could result in significant modifications to both the scope and content of the document. In addition, EPA's Science Advisory Board will also be given an opportunity to review this document before it is finalized.

Please describe the nature, extent and scope of subsequent discussions among the cooperating organizations on this document. Do you stand by your previous commitment to me that this document will also be reviewed by the SAB?

During the hearing, I also asked the Deputy Administrator if he believed "it important that the Agency's risk assessment work include the most up-to-date scientific research in the field." He indicated he did and I proceeded to ask him if he would be "disturbed to learn that a member of the SAB panel was in the process of publishing the largest study ever done on an issue he was reviewing that reached the opposite conclusion and never even bothered to raise that research during the panel's deliberations." Mr. Habicht responded that "[t]he kind of fact situation you pose would certainly be of relevance to the nature of the scientific outcome of a process."

I proceeded to outline to the Deputy Administrator that just such a situation had occurred. Dr. William Blot, a member of the SAB panel, published in December 1990 such a piece of research with Wu-Williams. My staff has reviewed thoroughly the transcript of the December 4 and 5 SAB panel meeting and found that Dr. Blot failed to disclose this research. *Do you believe it was appropriate for a review panel member to fail to reveal research of this significance?*

In response to the subsequent question, "what steps will you take to ensure that EPA updates the risk assessment using this and other recent data that are now available?", the Deputy Administrator stated "if there are significant new studies we certainly want to look at them and see how significant they are and how much they add to the process.... Any significant new study we would want to take a look at and assess it at least briefly before we issue a final report."

Asked if he would "be concerned if inclusion of recent studies in the risk assessment meta-analysis using EPA's own methodology changed the risk factor to a level that was statistically insignificant", he indicated he would "be interested in

that fact and knowing what is behind it..." *To date, what steps has EPA taken to follow up on the Deputy Administrator's commitment?*

My staff informs me that there are currently at least four studies whose data are not factored into the draft risk assessment. Copies of those four studies are enclosed with this letter. *Please have the staff of the Office of Research and Development [ORD] perform meta-analysis calculations employing the same methodology used in the draft risk assessment, which (1) include the four published studies I have supplied in addition to the research included in the calculations contained in the Draft Risk Assessment; and (2) have ORD perform separate meta-analysis calculations for U.S. and foreign studies contained in (1). Please supply the results of those meta-analyses to me.* I understand that this is a relatively straightforward mathematical calculation that takes little time to perform.

Please note that the Sobue study was referenced by one of the documents reviewers in his December SAB presentation [A. Judson Wells, page R4]. Also, last year my staff was informed that the only reason the Janerich data were not included in the risk assessment calculations was that the data were unavailable at the time. The Janerich publication was discussed in the risk assessment as the "Varela" study, which existed at the time the draft risk assessment was written as a doctoral dissertation from Yale.

Another of the four studies to which I refer -- Shimizu -- was mentioned by the Agency in the risk assessment, but not included in the EPA's meta-analysis of spousal smoking studies. The authors of the risk assessment stated in the document that these two studies [Varela/Janerich and Shimizu] were not included in the meta-analysis because of lack of "raw data" which would fit the statistical technique they chose for the meta-analysis. Staff informs me, however, that the Woolf method -- which was used in the risk assessment to combine the results of case control studies with cohort studies -- can accomodate the results presented in these two studies.

In addition to the four studies referred to above I have enclosed an abstract from another study by X. He and co-authored by R.S. Chapman. I believe Dr. Chapman is either a current or former EPA employee so there should be no problem in EPA obtaining this data if it chooses to do so. Additionaly, I note that X. He has been recognized in the past by EPA for his work in this area.

In performing the new meta-analyses calculations requested above, did any of the meta-analyses show a statistically significant relationship?

At my direction, my staff attended the April 18 meeting of the SAB Executive Committee meeting during the time period the ETS risk assessment review was discussed and during the discussion of EPA's plans to revise its Risk Assessment Guidelines over the next two years. The report and transmittal letter which the Executive Committee agreed to forward to you raised several important issues that I would like you to address.

The Charge to the SAB panel asked "[h]as EPA met the requirements stated in its carcinogen guidelines for characterizing ETS in category A, i.e., is the evidence sufficient to conclude that ETS is causally associated with lung cancer?" [Page 2, Memorandum from William Farland and Eileen Claussen to Robert Flaak, dated November 1, 1990.] While concurring with the draft assessment's conclusion, the transmittal indicates that the Committee "had some difficulty in applying the Guidelines for Carcinogen Risk Assessment (51 FR 33992), as they are currently formulated, to this complex and variable mixture." *While recognizing the need for some flexibility, do you believe it is appropriate to apply the Agency's own guidelines in an inconsistent and incomplete fashion?*

My concern in this area was increased by several reported comments by Dr. Lippmann and others at the Executive Committee meeting on this subject. For instance, one member of the SAB Executive Committee commented that in explaining that the SAB had difficulty applying the guidelines as written, it sounded a little like they were saying "if the data doesn't fit the guidelines, the guidelines should be changed."

> If the Guidelines for Carcinogenic Risk Assessment can be used to cast doubt on a finding that inhalation of tobacco smoke by humans causes an increased risk of lung cancer, the situation suggests a need to revise the Guidelines. [Page 28, draft SAB report]

I am sure you agree that changing the rules to fit a particular purpose or accommodate a particular point of view defeats the entire purpose of the guidelines. As you know, the guidelines "set forth the principles and procedures to guide EPA scientists in the conduct of Agency risk assessments..." *What procedures does EPA employ to ensure that its scientists conduct risk assessments in accordance with these guidelines?*

My staff sought to explore the applicability of the guidelines' definition for classification as a Class A with Dr. Lippmann at the public session for press and public following the Executive Committee meeting. On three separate occasions, my staff asked Dr. Lippmann, "if one were to apply the guidelines as written, could you classify ETS as a Class A known human carcinogen?" On all three occasions, Dr. Lippmann failed to respond to the question.

Ironically, without the press attention present the previous day, Dr. Lippmann did answer the question the next day. During the discussion period on the procedure for revising risk assessment guidelines, Dr. McClellan expressed the need to keep guidelines as guidelines with the flexibility to bring together risk assessment scientists and the cancer community. In response to that comment Dr. Lippmann indicated his agreement and raised the ETS review that had just been completed. He said that in ETS and Arsenic you had two such examples, because if you were to rigidly apply the guidelines then there was "no clear mechanistic basis for calling them carcinogenic."

EPA's existing guidelines do provide flexibility. In point of fact, that is the logic behind the concept of "weight of evidence." The guidelines "emphasize broad, but essential aspects of risk assessment...," yet seek "to permit sufficient flexibility to accommodate new knowledge and new assessment methods as they emerge." [51 FR 33993]

A cursory review of the risk assessment guidelines, the December 4 & 5 meeting transcript, the risk assessment itself, and the draft letter and report of the SAB Executive Committee provide interesting insight into the degree to which EPA failed to adhere to its own guidelines. Indeed, it appears that this is not a matter of minor deviation from the guidelines but the wholesale ignoring of them in the preparation of this risk assessment.

The EPA Draft Risk Assessment failed to apply a "weight of the evidence" approach to the scientific literature on ETS as called for by the EPA guidelines. Please supply answers to the following questions:

Why did the EPA and SAB reports neglect to review and articulate the scientific literature on actual ETS exposures? [Such an assessment is necessary to satisfy the guidelines' requisite for an exposure assessment.]

Why is "spousal smoking" considered an accurate exposure index when every epidemiological study published to date uses a different formula for defining spousal smoking exposure?

The dose-response evaluation for the epidemiologic studies was incorrectly applied in the EPA Draft Risk Assessment, yet no mention of this is made in the SAB report. *Can you explain why? Were you aware of this?*

The "hazard identification" reported by the EPA Draft Risk Assessment did not consider the literature on animal inhalation studies on sidestream smoke, or

any short term tests for mutagenicity, sister chromitid exchange, etc, in humans. *Does the literature in this area support such a Class A classification?*

Why has the EPA not reviewed the scientific literature to determine whether those constituents of sidestream smoke identified as "carcinogens" have been demonstrated to induce pulmonary cancer via inhalation in animal models?

The 1986 Surgeon General's report, the 1986 NAS Report, and much of the current literature recognizes that mainstream smoke, sidestream smoke, and ETS are physically and chemically distinct. The NAS is replete with statments to that effect. "Because the physiocochemical nature of ETS, MS, and SS differ, the extrapolation of health effects from studies of MS or of active smokers to nonsmokers exposed to ETS may not be appropriate." [Page 8, NAS Report] "The health implications to nonsmokers of exposure to ETS may not be a simple extrapolation from the studies of active smokers." [Page 20, NAS Report] "The dose of smoke delivered to the lungs of nonsmokers exposed to ETS is both qualitatively and quantitatively different from mainstream smoke, being a small fraction of that delivered to the lungs of an active smoker." [Page 184, NAS Report]

Why does the EPA draft and SAB report maintain that mainstream smoke and ETS are essentially equivalent?

The SAB noted that the Draft Risk Assessment relied almost exclusively on epidemiology. *Would it be appropriate for EPA to exclude recently published significant studies in updating the risk assessment [specifically, the Sobue, Janerich and Wu-Williams studies]? If it would be appropriate to exclude them, please provide a detailed explanation of why their inclusion is inappropriate and how they differ from studies that are included in the draft risk assessment meta-analysis?*

Why was workplace smoking exposure ignored in the EPA and SAB reports when several studies on spousal smoking also include information on workplace exposure?

If the epidemiologic results on spousal smoking are compared to a dose-extrapolation from active smoking to exposure to ETS in the nonsmoker, the difference in risk is of several orders of magnitude. *If EPA considers mainstream smoke to be "equivalent" to ETS and can be equated for the purposes of hazard identification, why is the dose-extrapolation model not urged by EPA nor the SAB to estimate the extent of risk?*

At least 25 studies examine the role of exposures other than ETS in childhood respiratory disease. These studies are listed in the EPA/IAQ literature index, yet they were neither reviewed nor included in the EPA draft or the SAB report. *Why were they excluded?*

How does the EPA justify its classification of ETS as a Group A carcinogen based solely upon uncritical acceptance of weak association epidemiology, to the exclusion of data which do not support its recommendation, i.e., actual exposure studies, studies on confounders, studies on tobacco smoke chemistry, studies on animal inhalation of sidestream smoke and short-term tests in humans?

Recent draft risk assessments on EMF and diesel exhaust considered all available published data on animals and on humans. The draft risk assessment on ETS appears deficient on both counts. Reported relative risk for humans exposed to EMF or diesel exhaust are comparable to or exceed those reported for spousal smoking, yet neither the EMF or diesel exhaust assessment recommends a Group A classification.

Following are statements contained in the EMF and Diesel Emissions risk assessments and comparative information from the draft ETS risk assessment. *In each of the delineated areas please justify the disparity among the recommended classifications.*

Strength, Consistency and Statistical Significance of Association

EMF: "The association between cancer occurrence and exposure to either EFL or RF files is not strong enough to constitute a proven causal relationship, largely because the relative risks in the published reports have seldom exceeded 3.0 in both childhood residential exposures and in occupational situations."

"The consistently repeated pattern of lymphoma, leukemia, nervous system cancer and lymphoma in childhood studies and the ruling out of several confounding exposure factors in the Savitz et al. (1988) study argue in favor of a causal link between these tumor types in children and exposure to ELF magnetic or electric fields. However, the fact that the odds ratios are small and in many cases not statistically significant indicates that the association may not be strong and therefore argues against a causal relationship."

Diesel Emissions: "Evidence for potential carcinogenicity of diesel exhaust in humans is limited; however, a few recent studies have indicated a small but significant increased risk of lung cancer in occupational exposed workers." A statistically significant risk of 2.6 was reported for miners and heavy equipment operators.

ETS: All studies used in the ETS Draft Risk Assessment have relative risks less than 3.0. EPA's draft calculated a 1.28 relative risk. 17 of 22 studies used in the meta-analysis were not statistically significant.

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Animal Studies

EMF: "Both animal and in vitro studies are needed to discover the relevant exposure factors and their interaction and to gain some understanding of the mechanisms of action."

Diesel Emissions: "Studies employing rats and an adequate experimental design were nearly all positive in demonstrating diesel exhaust-induced increases in tumorigenicity."

ETS: Not included in EPA Risk Assessment.

There are several comments/concerns that were raised during the December 4 & 5, 1990 SAB review panel meeting by panel members. *In order that I might more completely evaluate the comments gleaned from the transcript, please supply me with copies of all written material, such as statements, submitted by members of the SAB Review Panel.* In addition, I would like to raise several of those statements with you and ask questions based upon them. Please note that all quotations are from the transcript of the SAB panel meeting.

Dr. Laties expressed concern over the inclusion of the Hirayama study [called the "flagship study on environmental tobacco smoke" [Transcript, Volume I, page 65] by EPA's Dr. Steven Bayard in his presentation to the SAB panel] in the meta-analysis calculations. Specifically, Dr. Laties commented "I would drop the Hirayama study unless you can defend it against the comments of Dr. Kilpatrick.... If you read this critique you'd be convinced that Hirayama's study should not be cited or not depended upon heavily in this report." This is particularly significant in that Hirayama essentially "drives" the meta-analysis contained in the draft risk assessment. *Please provide an explanation as to why you believe Dr. Kilpatrick's critique is not valid or on the other hand why Dr. Laties' comments are not relevant.*

Another aspect of EPA's guidelines that I have not yet addressed is the role of confounding factors. The draft report did not address this issue. Dr. Benowitz noted, "...there are a number of potential confounders that have been raised and they really should be dealt with explicitly, especially looking at diet and lifestyle factors that really have to be considered and dealt with out front." *On what basis did EPA determine to ignore its guidelines requirement that "[t]he possibility of confounding has been considered and ruled out as explaining the association."* While the confounders may have been dismissed, they certainly were not evaluated. *Do you believe this is appropriate?*

As noted above, the ETS Risk Assessment did not include animal data. From the meeting transcript, it appears it was omitted because it did not support the conclusion EPA staff sought to achieve. Dr. Bayard said almost as much:

> We could have also put in the animal data, too and in fact if we had looked at - - when you look at the guidelines, the guidelines say put in what you know about animals.
>
> We got a lot of comments, we didn't put in any of the animal and smoking data. Whether it was due to condensates or actual inhalation data.
>
> We chose not to because we felt that we wanted to go – in hindsight, or at least according to what I'm hearing it was a mistake but we felt we wanted to go with, quote, the toughest – maybe the toughest data or the epidemiologic data which really had to do with the Class A characterization. [Transcript, Volume II, page 47, my emphasis]

Is such exclusion consistent with EPA policy? What action do you plan to take to insure that this situation does not occur in either the next draft of this risk assessment or future risk assessments on other topics?

During the SAB Executive Committee meeting on April 18, it was stated that there were three separate drafts of the SAB document transmitting the SAB comments on the ETS risk assessment to you. *Please provide me a copy of each of those three drafts as well as the final version transmitted to you.*

A subject of major discussion at the April 18, 1991 SAB Executive Committee meeting was the desire of the panel to have the opportunity to review and comment on the revised risk assessment. In fact, one SAB Executive Committee member urged [and the remainder of the Committee appeared to agree] that the letter of transmittal under discussion should be amended to make more explicit the potential for the committee reviewing the revised document. The need for further review was also made explicit by Chairman Lippmann in his closing comments at the December 4 & 5, 1990 SAB Review Panel Meeting.

> We are persuaded that the evidence exists for – subject to further review of it as it's developed and presented – for considering that ETS does cause lung cancer in non-smokers and that has to be a tentative judgement until we see how you develop the case for it further.
> The case was not, many people felt, was not fully developed in the document that we did review but ... we feel that you should be able to make that case.... So our judgements, of course, are tentative at this point and it depends – and will only be final if we have the opportunity to review a revised document and see the basis for it. [Transcript, Volume II, page 168.]

After reviewing the initial SAB comments presumably you will direct the EPA ORD staff and Indoor Air staff to respond to the SAB comments. *Do you plan to submit the revised document to the SAB for its review as the SAB indicates is desireable, if not necessary? If not, please explain why.*

It is my understanding that EPA currently lists 14 or 15 substances as Class A -- known human carcinogens. For each substance so classified, please provide answers to the following questions:

In considering the epidemiological research, what was the level of relative risk identified for the substance? Was a formal meta-analysis performed?

What was the makeup of these studies in terms of U.S. and foreign?

How many of the substances were classified exclusively on the interpretation of weak association epidemiology studies?

Was there animal research to support the hypothesis?

What confounders were considered and ruled out?

I think it appropriate at this point to consider Dr. Kabat's comments at the SAB review panel meeting in so far as they help illustrate the Agency's apparent inconsistency.

> ... I think classifying ETS as a Class A Carcinogen is maybe a little rash.
>
> In the slide that Steve Bayard showed yesterday it showed the 15 carcinogens that EPA has classed as Class A Carcinogens or known human carcinogens and that included BCME, coke oven emissions, asbestos, vinyl chloride and others and I think that that's not what we're dealing with when we're dealing with ETS. [Transcript, Volume II, page 15-16.]

At the public and press session on April 18 following the SAB Executive Committee meeting, Dr. Lippmann was asked to quantify the risk posed by ETS. He indicated that most people had exposed themselves to greater risk driving to EPA to attend the SAB meeting.

I believe this speaks volumes for the need to review the care or lack thereof that EPA takes in seeing that it adheres to its own guidelines.

Finally, I would like to follow up on the document request contained in my letter dated November 1, 1990. In that letter I requested the following material:

> 1) Such documents as are significant to show all procedures established by EPA, since the 1978 inception of Science Advisory Boards, for identification, evaluation and appointment of members of SAB review panels, including all documents relating to compliance with the requirements of the Federal Advisory Committee Act and all other relevant statutes and regulations in relation to such panels;
>
> 2) All documents relating to the identification, evaluation, and appointment of any proposed or actual members of the ETS review panel, including all documents reflecting the decision-making process within EPA;

3) All documents containing or reflecting communications with any persons or entities inside or outside EPA regarding the actual or potential membership of any person on the ETS review panel;

4) Identification of all individuals within the EPA staff and the SAB who have played a role in the decision-making process with respect to appointments to the ETS review panel, and a description of their role.

I appreciate the material supplied by Dr. Donald Barnes' office in response to this request. I must note that in following up with EPA Congressional Affairs staff as to why there were no documents from the "program office", my staff was informed that the office maintained it had no such documents. I find this particularly interesting since a review of the documents provided by Dr. Barnes indicates that the "program office" recommended a number of the individuals who served on the panel. *Please explain how recommendations such as this could be made without documentation. How did the program office come up with the list of individuals that it apparently recommended to the SAB? What individuals in the program office participated in recommending individuals for such membership?*

As you know, my November 1, 1990 letter expressed interest in whether or not the Federal Advisory Committee Act was being fully complied with. *Please detail any instances in which you have authorized the SAB Executive Committee to meet in non-public session during the past two years on this or any other matter. Please supply copies of any such authorizations.*

While the controversy over Dr. David Burns' membership on the panel has come and gone, I would note for the record that a review of the documents previously supplied by the Agency indicates that a decision not to include Dr. Burns may have been made as early as August of last year. At least, Dr. Burns' name does not appear on some early drafts of the panel membership list. The decision to include him came only after Mr. Axelrad attended an October meeting with Dr. Barnes and anti-smoking activists on the issue of Dr. Burns membership. Dr. Barnes' memo indicates that

> [t]he visitors and Mr. Axelrad, while acknowledging that they can see how the [information concerning Dr. Burns' views] could lead some people to reach a conclusion that Dr. Burns not be asked to serve on the Panel, argue that in the eyes of the public (and Dr. Burns), he was invited to serve via the August 10 memo. Therefore, to reassess the Panel membership at this stage [was] inappropriate and unacceptable. [For The Record Memo, dated October 22; memo attached]

I believe that the referenced August 10 memorandum is within the parameters of my November 1, 1990 request. However, it was not included in the materials that I was provided. I assume this was merely an oversight. *Please provide a copy of this memorandum.*

Your assistance and repsonse to these questions is greatly appreciated. I recognize this letter is lengthy so I have identified those areas where a response is necessary by putting the question or request in italics. Please supply answers to the above questions and requests for documents and information no later than May 31, 1991.

I recognize this request may seem extensive, but I believe the time frame provided should be sufficient in light of the fact that EPA would have had to address or consider most of the issues raised in the drafting of the risk assessment in order to even begin to comply with its own guidelines.

If you have any questions or need any further information, please feel free to contact Mr. Jeff Schlagenhauf of my staff at 225-2815.

With kind regards, I am,

Sincerely,

Thomas J. Bliley, Jr.
Ranking Minority Member,
Subcommittee on Oversight
and Investigations

cc: The Honorable John D. Dingell
Chairman, Subcommittee on Oversight and Investigations

The Honorable F. Henry Habicht, II
Deputy Administrator, Environmental Protection Agency

The Honorable William G. Rosenberg
Assistant Administrator for Air and Radiation
Environmental Protection Agency

Dr. Erich W. Bretthauer
Assistant Administrator for Research and Development
Environmental Protection Agency

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cc: Dr. William H. Farland
Director, Office of Health and Environmental Assessment
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Environmental Protection Agency

Dr. Donald Barnes
Executive Director, Science Advisory Board
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